LINNÆUS,

NUTTALL AND GRAY.

DEDICATION OF MARBLE BUSTS ERECTED

IN THE

MISSOURI BOTANICAL GARDEN.

BY HENRY SHAW,

JUNE, 1883.

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..., PRINTERS, 221 NORTH MAIN STREET, ST. LOUIS.

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MO. BOT. GARDEN.
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THE UNVEILING.

THE dedication and unveiling of the busts took place on Friday, June 22d, 1883. The members of the American Association of Nurserymen, Florists and Seedsmen, then holding their annual convention in St. Louis, were present by invitation, and other guests.

Remarks by Mr. HENRY SHAW—

GENTLEMEN—I greet you, and welcome the horticulturists and florists of America to the Missouri Botanical Gardens. On this occasion of your visit, in the briefest possible way, I take the agreeable pleasure of inaugurating the marble busts placed over the entrance of this newly erected plant house. In the centre is LINNÆUS, the great reformer of the natural sciences, called by his contemporaries the "Prince of Nature." On his right, the bust of THOS. NUTTALL, designated the "father of Western American botany," by our learned friend, Dr. George Engelmann. To the left, or the east side, is that of Dr. ASA GRAY, well-known to you all as a bright ornament to American science. These men are and have been shining lights as naturalists in describing and classifying the numerous and various objects of the vegetable kingdom. These monuments are durable mementoes of our esteem and respect for illustrious men, whose names are indelibly connected with the plants and trees that beautify the face of nature, and thus their names will be handed down to future ages and be known as long as science and civilization exist among men.

THE vegetable world like the animal, consists of a vast multitude of species, composed of organic vesicules offering a prodigious diversity of form. Such living combinations for plants presenting to the eye an infinite number of the most dissimilar forms of vegetation. Botanists have gathered together these endless forms — have studied and arranged them; a mighty host, daily swelled by new discoveries.

We may assume it as a fact that the vegetable kingdom was the first to engage the attention of man, for our first parents dwelt in a garden, and lived on its productions; plants yielded to man his earliest food, his first built habitation.

This produced the art of distinguishing one kind of plant from another, and so involving from the beginning the contrivance of names for plants. By collecting together individuals, identical in form, and the uses they could be applied to, species were distinguished, and groups, analogous to what are called genera; classes were recognized under the well known names of grass and herbs yielding seed, and fruit trees yielding fruit.

Among the ancient Greeks, Theophrastus had his water-plants and parasites, potherbs, and forest trees, and grain plants. Dioscorides had

aromatics and gum-bearing plants. Pliny and the Roman naturalists were the imitators of the Greeks; their successors retained the same kind of arrangement for ages. A cessation of all philosophical inquiry into the nature of vegetation endured about seventeen hundred years, during all which time scarcely a single addition was made to the stock of knowledge left behind him by Theophrastus. But with the revival of letters a new direction was given to researches in natural history. The woods, the plains, the valleys, the ocean and the mountains were investigated with an ardor that soon made amends for ancient indifference. This spirit of inquiry once excited, men speedily learned to estimate rightly the greater value of facts than of assertion; one discovery produced another, and in a few years a new foundation was laid of that imperfect but beautiful science which constitutes modern botany.

Up to the middle of the seventeenth century vegetable physiology had been grounded upon observations entirely independent of anatomical investigations. But about this time the accurate inquiries of two naturalists, John Ray, an English clergyman, and Joseph Pitton de Tournfort, a professor of botany in Paris, who flourished at the end of the seventeenth century, and upon whose systems the modern arrangement according to natural orders is founded. This, however, and all others were for a time eclipsed by another better adapted to the circumstances of the times, and emanating from a writer who had the courage and talent to carry reformation into every branch of natural history.

LINNÆUS.

CHARLES LINNE, or LINNÆUS, as he is usually called, was a person exactly adapted to the science of the times in which he lived. The various departments of natural history had not at that time their present extended range, and were all equally in need of revision and improvement, and above all the nomenclature of natural history required to be reduced to one uniform standard. Nature had gifted Linnæus with a logical accuracy of reasoning, and a neatness and perspicuity of expression, which carried with them a charm that the world was not slow to appreciate, for the opinions of Linnæus were received as oracular.

Carl, the eldest son of Nils Linnæus, was born May 24th, 1707, at Rushalt, in the province of Smaland, Sweden, where his father was a minister. With an inheritance of a father's love for plants and their cultivation, he is thus recorded by one of his pupils: "From the very time that he first left his cradle he almost lived in his father's garden, which was planted with some of the rarer shrubs and flowers; and thus were kindled, before he was well out of his mother's arms, those sparks which shone so vividly all his lifetime, and latterly burst into such a flame."

According to the system then employed in Sweden, it was necessary that young men should pass from the schools, or from private teachers, to what was called the Gymnasium, where the higher branches of literature were taught, and at the age of sixteen, Linnæus was placed in this seminary. Here he still continued his dislike for those theological studies necessary for a divine, and showed a more decided taste for botany, by forming a small library of such books upon the science as he could procure, and from his studious perusal of them acquired the college name of the "Little Botanist." Next year it was thought necessary that Linnæus should complete his education at the University of Lund, where he lodged in the house of Dr. Stobeus, a man of mild and excellent disposition, Professor of Medicine, and physician to the king. Stobeus admired the industry of his lodger and his acquirements in natural science, allowed him free access to his excellent library, his collection of shells, minerals, plants and birds, and first pointed out to our young botanist the manner of making a "hortus siceus."

It was here he composed his "Spolia Botanica," and contracted a friendship with Artedi, afterwards celebrated for his ichthyology. These two young men now devoted their whole leisure to natural history, Linnæus reserving for his share birds, insects and plants, while his companion took fishes, reptiles, etc.

His dissertation, De Nuptiis Arborum, was shown to Dr. Rudbeck, who was so well pleased with the tract and its author, that soon after,

having obtained permission on account of his advanced age to have an assistant in his duties, Linnæus was thought capable of teaching the science of botany, and was placed nearly at the head of an establishment in which, a year before, he had applied for the situation of gardener.

It is perhaps worthy of incidental remark that the most part of naturalists have commenced their career with the study of botany, and this admits of an obvious explanation. Birds and other animals look upon man as their enemy and fly at his approach. To study them, however repugnant to his humane feelings, they must be killed; the mineral kingdom is concealed in the bowels of the earth, and cannot be reached except by tedious and painful exertions. On the other hand, plants and vegetables seem to covet the admiration and court the acquaintance of man: they unfold spontaneously their smiling beauties to his eye, and thus, as it were, invite him to examine and explain their structure. This branch of natural science is not merely the most easy and attractive at the outset—it is the key of all the rest. Whoever becomes familiar with plants and trees, soon desires to know the names of the insects that feed on their leaves, and of the birds that lodge among their branches; he then wishes to extend his observations to the nature of the soil that nourishes them, and thus, by an obvious transition, he passes from botany to the study of zoology and mineralogy. This was exactly the case with Linnæus. He was a botanist from his cradle—he lived from his childhood amidst shrubs and flowers.

He was next appointed to the laborious undertaking of exploring Lapland; agriculture and botany were the branches to which he was required to direct his attention.

May 13, 1732. He commenced the journey in high spirits and in love with nature; he traveled on horseback, and carried his whole baggage on his back. In his "Flora Lapponica" he has eulogized the country as all that could be desired—happy and smiling, free from many diseases and the scourge of war, while its inhabitants are said to be innocent and primitive, displaying the greatest hospitality and kindness to a stranger. In this journey he traveled over the greater part of Lapland, skirting the borders of Norway, and returned to Upsala by the Gulf of Bothnia, having passed over an extent of several thousand miles. He considered his labors amply remunerated by the information he had gained, and the discovery of new plants in the higher mountains, with the payment of his expenses, amounting to about £10.

In order to better his condition of life, medicine was chosen as a profession, but for this a degree must be obtained, and he resolved to proceed to the University of Harderwick.

Upon his arrival there he was introduced to the professors, wrote and defended his theses, and finally received his degree of M. D., with a diploma containing testimonials of his abilities.

At the commencement of his journey homewards, the first place where Linnæus remained for any length of time was Amsterdam. Here he gained the friendship of the celebrated Boer-

haave, and that of Dr. Gronovius, who was so much pleased with the sketch of the "Systema Naturæ," by our young naturalist, that he requested to be allowed to defray the expenses of the publication, which was gladly granted. By Dr. Boerhaave, Linnæus was introduced to Mr. Clifford, an opulent banker of Amsterdam, and at that time the most enterprising botanist and horticulturist of Europe. With him Linnæus says he spent some of his happiest days, lived like a prince, more glorious, no doubt, says Sir James Smith, than an Asiatic despot. Devoted, with all the ardor of a young man to a favorite and fascinating pursuit, he was at once placed in one of the most favorable situations in the world for carrying it out.

In addition to these advantages Clifford allowed him a munificent salary. So lavish indeed was Clifford upon his favorite pursuit, that (Linnæus having written the "Musa Cliffordiana,") he sent him to England to procure rarities for his garden, and to communicate with the most eminent botanists and horticulturists. On the arrival of Linnæus at London, he waited on Sir Hans Sloane, to whom he had a letter from Dr. Boerhaave, which recommended him in the strongest language, but neither he or Dellenius, whom he met at Oxford, showed him much attention until his discoveries were truly made known to them.

He visited Martyn, Ward, Miller, Dr. Shaw, the celebrated traveler, and Peter Collinson, at Mill Hill. These men of science admired his genius and valued his friendship; they promoted his

wishes by enriching him with books and supplying him with plants, both for his own herbarium and the garden of his patron; and on his return to the continent, long continued a correspondence with these English naturalists in terms of the most sincere friendship.

During this excursion Linnæus had greatly enriched the garden and herbarium of his kind patron, with novelties from English nurseries, and particularly with American plants. By means of his English friends he formed a correspondence with an American botanist, John Barham, of Philadelphia, whom he styled the greatest natural botanist in the world. He now completed the fine collection of his patron, and published the "Hortus Cliffortiana," brought out in a most superior style, and even found time, or recreation, as he calls it, during the nine months so occupied, to forward his "Critica Botanica," "Genera planturum," &c.

Notwithstanding his declining health, owing to application and study, he remained a few months longer in Holland and arranged the botanic garden at Leyden, and at the same time composed and printed his "Classes Plantarum," which is a complete view of all the botanical systems ever known, assisted Dr. Gronovius with the "Flora Virginica" and superintended the printing of the Ichthyologia of his deceased friend Artedi.

Linnæus was one of the few friends that the great Dr. Boerhaave would allow to see him on his death bed. Linnæus himself relates the last

interview: "He bid me a sorrowful adieu, as I kissed his hand in token of respect. Boerhaave put my hand to his lips in return, and addressed me in these impressive words: 'I have lived my time, and my days are at an end; I have done everything that was in my power. May God protect thee, with whom this duty remains! What the world required of me it has got, but of thee it expects more. Farewell, my dear Linnæus.'"

In a weak state from an attack of fever and ague Linnæus set out to return to Sweden, taking his route by Paris, which he had long been anxious to behold. By means of letters from the Professors of the University of Leyden he was introduced to Jussieu; he received every attention, and was shown all the stoves, conservatories and museum of the "Jardin des Plantes," and and made acquainted with men of science. The Royal "Academie des Sciences" paid him the very high compliment of electing him a corresponding member, and importuned him to remain in France. After an absence of nearly three years he embarked at Rouen for Sweden by sea, having in his absence improved his knowledge of Natural History, particularly botany, and with the assistance of liberal patrons published many of his works. Returned to Sweden he practiced as a physician. He became acquainted with Captain Triewald, who was endeavoring to establish an Academy of Sciences, and in conjunction with Baron Hopken a society of some note was instituted, the presidency of which devolved upon himself. This was the origin of the present

Academy of Stockholm. By some lucrative appointments he was now in a state of comparative independence, and was united in marriage to Sarah Elizabeth Morea, June 26, 1739. He was now at the height of his career of reputation and prosperity; he had nevertheless his opponents and detractors. To show that all men of learning did not agree with his libellers, he published a brief sketch of his life and a list of his works, and the various testimonials to his talents, and relied upon the judgment that would be given in his favor upon the word of a Boerhaave, a Dillenius, a Sauvages, a Jussieu and a Haller. He avers he was not above being corrected when done in a proper spirit, for who could perambulate without erring the wide-spread fields of nature? Who could observe everything with perfect accuracy?

At the age of thirty-four we find Linnæus enjoying the fruits of all his labors and perseverance, teaching his favorite science as its head in Sweden; he enjoyed himself to the utmost; he called his garden "his Elysium," and the enthusiasm with which he set about improving it knew no bounds. Linnæus undertook the reform of the botanic garden of Upsala; a new green house was erected, an old house of stone built by the great Rudbeck was converted, as Linnæus says, from an owl's nest into a lodging fit for the professor, and in a few years the garden at Upsala ranked equal, if not superior to similar establishments in the first capitals of Europe. The number of students increased to one thousand, and the fame of the University extended over Europe, and even to America.

By his ready flow of language, and the happy manner in which he inculcated his ideas, rendered the students converts to his system, and made them as enthusiastic as himself. In like manner did he imbue the minds of his pupils with a love for foreign travel and research in unknown countries, pointing out the delight of discovery in the most fascinating terms. In a few years his pupils of the most persevering minds were distributed over the whole world, and their various histories would form of itself a volume of the most interesting kind. No science has so many martrys as natural history: many of his pupils fell victims to the elements or to the diseases of a pestilential climate, but many returned, amply compensating themselves for the hardships they had undergone. The generic names of the plants Osbeckia, Kalmia, Solandra, Alstroemeria, Loeflingia, bestowed by their venerated preceptor, will recall the names of some of his pupils, and hand them down to posterity.

A medal to this distinguished man was struck by some of his friends in 1746. He soon after received the rank and title of Archiator from the King, and was the only Swede chosen into the new-modeled Academy of Berlin. All these honours however, though he was by no means indifferent to such, appear to have given him less delight at this time than the acquisition of the herbarium made by Hermann, in Ceylon, which an apothecary of Copenhagen had unknowingly possessed. When shown to Linnæus he soon discovered to whom it had originally belonged, and rejoiced at recovering a treasure supposed to have

been irrecoverably lost. He labored day and night in examining the flowers; hence originated his "Flora Zeylanica."

The fame and reputation of Linnæus had now gained him both riches and honours, being admitted a member into most of the scientific societies of Europe. The Imperial Academy distinguished him by the name of Dioscorides Secundus. The Royal Academy of Sciences of Upsala, the Academy of Sciences of Montpelier, the Royal Academy of Paris, and of Berlin, and the Royal Society of London, all ranked him among their members; in 1761 he attained an additional accession of honours, being presented by his sovereign with letters of nobility. But perhaps the most flattering testimony to the extent and magnitude of his fame was that which he received from the King of Spain, who invited him to settle in Madrid, with an offer of an annual pension for life of 2,000 pistoles, letters of nobility, and free exercise of his own religion. He returned most grateful acknowledgements for the intended honour, and his answer that "if he had any merits they were due to his own country." The exertions and reputation of Linnæus had rendered botany extremely popular in Sweden, and its interests were combined with those of commerce in various distant expeditions.

Many of the principal merchants as well as nobility had acquired a taste for natural history, and were proud to further the views of their distinguished professor, who was now considered an honor to the nation. His herbarium received im-

portant and instructive additions, accompanied by communications from Gmelin, and others, who had visited Siberia, and the original collections of Magnol and Sauvages were transmitted from Montpelier. Gronovius also transmitted the collection of Clayton, of plants from Virginia. Such communications from all parts of the world grew more and more frequent as Linnæus advanced in life, as also did the academical honors which every literary body was proud to confer on him. In 1745 Linnæus published the first edition of his Flora Suecica, and in 1746 his Fauna Suecica came out. In 1749 appeared his Materia Medica, written in the same systematic and didactic style as the rest of his works. In this year he was Rector of the University, and was memorable to him also for an attack of the gout, so violent as to endanger his life. He always attributed his restoration from this fit, and other subsequent ones, to his eating abundantly of wood strawberries, the only sort then known in Sweden.

To this attack of the gout, however distressing to the patient, the world is indebted for one of his most valuable and remarkable works, the Philosophia Botanica. The subject of this work must have been comprehended in the mind of its author when he wrote his Fundamenta Botanica, of which it is professedly an exemplification, in the form of a commentary. This publication embraces the whole range of the science of the vegetable kingdom, and indeed all the principles of the knowledge of nature.

About this period the Queen of Sweden, sister to Frederick the Great, of Prussia, had a fervent

taste for natural history, as well as her husband, King Adolphus Frederick, and much favor to Linnæus. He was employed in arranging her collection of insects and shells in the country palace of Drotningholm, at an easy distance from his own villa, and was frequently honored with the company and conversation of their majesties. The result of his labors on these occasions was not given to the public till 1764, when his Museum Reginæ appeared in 8 vo. His most magnificent publication appeared in 1754, being a large folio, entitled Museum Regis Adolphi Frederici, comprehending descriptions of the rarer quadrupeds, birds, fishes, serpents, etc., of the King's Museum, in Latin and Swedish, with plates, and an excellent preface. The preface being one of the most entertaining and eloquent recommendations of the study of nature that ever came from the pen of an enthusiastic naturalist, and was translated and published in English in 1786, and again in 1798. Suffering from severe attacks of the gout, which prevented his repose for many nights at a time, and were the first symptoms of an approaching decay in his vigorous constitution. The excitement of seeing a collection of natural novelties had a singular effect, and he is said to have been cured in this way of a severe fit, by the return of a pupil from North America. When he heard of the return of Kahn (who spent several years in this country before the Revolution and wrote his travels) with a number of new plants and other curiosities, the desire of seeing which, and the delight which he felt when he saw them, was so great as actually to make the gout disappear.

In the meantime this eminent man had prepared a lasting monument of his own talents and application, which even his rival, Haller, nobly denominates the *maximum opus æternum*, the

SPECIES PLANTARUM,

First edition, 1753, second edition, 1762; in 2 vols., octavo. This work, well known for its great importance as a complete arrangement and definition of every plant of which its author had any satisfactory knowledge, is very memorable for the adaptation of specific names. This simple and happy invention by Linnæus was extended to minerals, in his Museum Tessinianum, and subsequently to all the departments of zoology, has rendered his works more popular than any other of their merits. Specific differences, previously used as names, from their great length, were rendered impracticable; and the application of numeral figures to each species, in Haller's manner, being most burdensome to the memory, all natural science, as Sir Edward Smith says, would have been ruined for want of a common language, were it not for this simple and happy invention. By this means we speak of every natural production in the three kingdoms of nature in two words, its generic and specific name. The Linnæan specific names are now in universal use, and this principle has been with great advantage extended to chemistry, of which Bergman, the friend of Linnæus, originally set the example.

His great and important work the "Systema Naturæ," appeared much enlarged in a twelfth

edition in the year 1766, which is an epitome of the vegetable kingdom, to which the mineral kingdom was added in a third volume. We can readily pardon (says his learned biographer, Sir E. Smith,) the self-complacency of its author when, in his diary, written for the use of his friend, Menander, he calls the Systema Naturæ "a work to which natural history never had a fellow." We may venture to predict, as this was the first performance of the kind, it will certainly be the last. The science of natural history has now become so vast that no man can ever take the lead again as a universal naturalist.

Though Linnæus declares in his diary that he gave up the general practice of physic on his establishment at Upsala, attending only his friends and the poor, he appears to have ever paid great attention to that noble and intricate science. His lectures on medicine, dietetics and animal economy, were in high repute, and though undoubtedly a great, sagacious observer in every department of nature, he was in this somewhat too theoretical, and when he applies his own didactic talents to illustrate medical theories, or anything else, he is always ingenious and as luminous as the subject will allow. His curious little "Clavis Medicinæ," published in 1766, and his "Genera Morborum," which appeared three years before, are not only striking but instructive.

Notwithstanding the relief which Linnæus experienced by the assistance of his son, he continued his public activity till two years before his

death ; a mind so constituted, and a manner of life so habituated to activity, could not at once relapse into idleness. In 1771 he is described by a traveller as leading an active and bustling life, never seen at leisure ; even his walks had for their object discoveries in natural history, and all his moments, not embittered by pain, were devoted to his darling science.

In the following year he gave a proof of the remaining vigour of his constitution, by delivering a customary oration upon his resignation of office of Rector of the Assembly, which he had already held three times. He chose as a subject the "Deliciæ Naturæ," and the whole academical forum found it so beautiful that the students of the Swedish provinces sent deputies to him the next day to entreat its translation into the Swedish language.

In 1773 he was chosen member of a committee to superintend a translation of the Bible into Swedish, and the task of ascertaining and describing the plants and vegetable productions mentioned in the Holy Scriptures was entrusted to his care. In the year following he composed his final essay. The king had received from Surinam a collection of curious plants preserved in spirits, with the fruit and flowers entire, and with much liberality presented them to Linnæus, who composed a catalogue of the whole, making out thirteen new genera and about forty undescribed species. One of these he dedicated to his sovereign, under the title of Gustavia Augusta,

of the Myrtle family, as the truest way by which he could express his gratitude for the great distinctions conferred upon himself. And it was in the same year that he received the first fatal warning that the termination of his earthly career was near at hand. While he gave a summer lecture in the botanical lecture room he had an apoplectic stroke, and fell into a swoon from which he did not for a long time recover. From this period he declined gradually. The year following he had a third and fatal blow, and as the powers of his constitution became exhausted, he became insensible to pain, and expired in a gentle slumber January 10, 1778, aged seventy-one years and seven months.

Thus terminated, writes Sir William Jardine, the active and ever-searching life of this pious and industrious man. Every human honor was paid to his remains, and the sorrow of his country was without bounds. To use the words of their sovereign, they had "lost, alas! a man whose celebrity was as great over the world as the honor was bright which his country derived from him as a citizen. Long will Upsala remember the celebrity it acquired by the name of Linnæus." His sovereign commanded a medal to be struck expressive of the public loss.

Linnæus, the pride of Upsala, lies interred under a stone near the main door of the cathedral, with his much loved wife by his side. At a short distance from it there is a bust of Linnæus cut in alto-relievo in black marble, and the fol-

lowing inscription engraved on a tablet of beautiful Swedish porphyry:

BOTANICORUM PRINCEPS,

AMICI ET DISCIPULI.

MDCCXCVIII.

In foreign lands equal regard was paid to his memory. He was eulogized in the Royal Academy of France by Condorcet, and his bust was erected under the highest cedar in the Jardin des Plantes. Dr. Hope, the Professor of Botany in the University of Edinburg, had a monument erected to his name in the botanic garden.

Many societies have been formed under the auspices of his name, of which the most important was the Linnæan Society of London, which possesses the library, herbarium and manuscripts of the illustrious person whom it records. His statue was of middle size and muscular; his features were agreeable, and his countenance animated; his eyes remarkably bright, ardent and piercing. He wrote and spoke the Latin language with elegance and ease, and Swedish the only modern language he is known to have used. In following out his beloved science his mind was ardent in the highest degree; he never, however, lost sight of the First Great Cause, but looked to Nature's God as the giver of all his benefits and acquirements. The most important of his works commence and finish with some verse from the Scriptures, implying the power or greatness of God, or his own gratitude to Providence for the immense benefits conferred upon

himself and the inhabitants of the world; and his descriptions are continually interspersed with expressions of admiration, of gratitude, and of love.

To honor the memory of this great man, and as an incentive to all students of Natural Science, his marble bust is placed over the entrance of the principal plant-house of the Missouri Botanical Garden, A. D. 1882.

NUTTALL.

THOMAS NUTTALL, an American naturalist, born in Yorkshire in 1784. He learned the trade of a printer, and so improved his time as to acquire a thorough knowledge of the Greek and Latin languages. He came to the United States at the age of twenty-two; was employed at his business in Philadelphia, and devoted much of his time to the study of ornithology and botany. At Philadelphia he attended all lectures on scientific subjects; and, having obtained an introduction to Dr. Barton, the botanist, by whom at the conclusion of one of his lectures, he was referred for further information to the celebrated Wm. Bartram, and to the kindness and attention he received from him, whom he often refers to in his works as "his venerable friend," the world is indebted for the sealing of those scientific proclivities, which has since made his name famous. From 1808 his progress in botanical science was very rapid, gathering his knowledge, as he had done his past education, by his own efforts alone. His botanical trips were frequent and arduous, one of his earliest being to investigate thoroughly the plants of the peninsula formed by the Delaware and the Chesapeake. As his knowledge of things at home became more perfect he thirsted for more information, and boldly penetrated (usually alone) many hundreds of miles into the interior, making

friends even with the most savage children of the forest. On one occasion, far away in the woods and entirely alone, he was taken very sick, and after every remedy had failed he composed himself to die. He was found by an Indian, who placed him in a canoe and rowed him down the river to the region of the white man. He traveled in nearly every State of the Union; he explored the great lakes and the upper branches of the Mississippi, and in 1810 ascended the Missouri as far as the Mandon villages. Washington Irving, in his "Astoria," from notes furnished by Messrs. Hunt and Crooks of their journey to the Columbia River, describes Mr. Nuttall as follows: "1811, May 10th. The two naturalists, Mr. Nuttall and Mr. Bradbury, who had joined the expedition at St. Louis, still accompanied it, and pursued their researches on all occasions. Mr. Nuttall seems to have been devoted to his scientific pursuits exclusively. He was a zealous botanist, and all his enthusiasm was awakened in beholding a new world as it were, opening upon him in the boundless prairies, clad in the vernal and variegated robe of unknown flowers. Whenever the boats landed at meal times, or for any other temporary purpose, he would spring on shore and set out on a hunt for new specimens. Every plant or flower of a rare or unknown species was eagerly seized as a prize. Delighted with the treasures set out and spreading themselves before him, he went groping and stumbling along the wilderness of sweets, forgetful of everything but his immediate pursuit, and had often to be sought after when the boats were about to

resume their course. At such times he would be found far off in the prairies, up the course of some petty stream, laden with plants of all kinds. The Canadian voyagers, who know nothing out of their immediate line, and with constitutional levity, make a jest of anything they cannot understand, were extremely puzzled by this passion for collecting what they considered useless weeds. When they saw the worthy botanist coming back heavily laden with his specimens, and treasuring them up as carefully as a miser would his hoard, they use to make merry among themselves at his expense, regarding him as a somewhat whimsical kind of madman.

In 1819 he explored the Arkansas, and published his travels in 1821; crossed the continent in 1834 to Oregon, California and the Sandwich Islands. The impassioned naturalist thus describes his wanderings in search of knowledge: "How often have I realized the poet's buoyant hopes amidst these solitary rambles thro' interminable forests. For thousands of miles my chief converse has been in the wilderness with the spontaneous productions of nature; and the study and contemplation has been to me a source of constant delight. This fervid curiosity led me to the banks of the Ohio, thro' the dark forests and brakes of the Mississippi, to the distant lakes of the Northern frontier; thro' the wilds of Florida; far up Red River and the Missouri, and thro' the territory of Arkansas; at last over the

> "Vast savannahs, where the wandering eye,
> Unfixt, is in a verdant ocean lost."

And now across the arid plains of the far west, beyond the steppes of the Rocky Mountains, down the Oregon to the extended shores of the Pacific, across the distant ocean to that famous group of islands (Sandwich Islands) where Cook fell a sacrifice to his temerity. Here for the first time I beheld the beauties of a tropical vegetation; a season that knows no change but that of spring and summer; an elysian land, where nature offers spontaneous food to man; the region of the Bread Fruit and the esculent Colocasia. The Cocoa-nut and fragrant Pandanus afford delicious food, cordage and mats, and the very reeds which border the rivulets are no other than the precious sugar cane of commerce.

Leaving this favored region of perpetual mildness I now arrived on the shores of California at Monterey. The early spring (March) had already spread out its varied carpet of flowers. All of them had to me the charm of novelty, and many were adorned with the most brilliant and varied hues. The forest trees were new to my view. A magpie, almost like that of Europe (but with a yellow bill), chattered from the branches of an oak with leaves like those of the holly. A thorny gooseberry, forming a small tree, appeared clad with pendulous flowers as brilliant as those of a fuchsia. A new plane tree spread its wide arms over the dried rivulets. Already the cheerful mocking bird sent forth his varied melody, with rapture imitating the novel notes of his neighboring songsters. The scenery was mountainous and varied; one vast wilderness, neglected and uncultivated (1835). The very cattle appeared as wild

as the bison of the prairies, and the prowling wolves (Coyotes), well-fed, were as tame as dogs, and every night yelled familiarly through the village. In this region the olive and the vine throve with luxuriance and teemed with fruit; the prickly pears (Cactus) became small trees, and the rare-blossomed agave appeared consigned without care to the hedgerow of the garden.

After a perilous passage around Cape Horn, the dreary extremity of South America, amidst mountains of ice which opposed our progress in unusual array, we arrived again at the shores of the Atlantic. Once more I hailed those delightful scenes of nature with which I had been so long accustomed. I rambled again thro' the shade of the Atlantic forests, or culled some rare production of flora in their native wilds."

He published several papers on the shells and plants of the regions through which he had travelled. From 1822 to 1834 he was professor of Natural History in Harvard College. Among his works are the valuable *genera* of North American Plants, in 2 vols., 1818; a manual of the Ornithology of the United States and Canada, 1832-1834, and the North American Sylva, in 3 vols., 1842-1849, being a continuation of Michaux's great work on the Forest Trees of North America.

"But" as he says, "the oft-told tale approaches to its close, and I must now bid a long adieu to the new world, its sylvan scenes, its mountainous wilds, its plains, and henceforth, in the evening of my career, I return almost an exile to the land of my nativity." He returned to England and

lived on the estate of Nutgrove, St. Helen's, Lancashire, bequeathed to him on condition that he should there reside, and there he died.

Nuttall, of all the early American naturalists, was the one who had travelled the most extensively on this continent; indeed the only one who, up to his time, had crossed the Mississippi and made the plants of Missouri, Arkansas and the West his particular study. He first visited St. Louis in 1810, when he joined Messrs. Hunt & Crooks in their Astorian expedition as far as the Upper Missouri, and returned from the Mandan villages with Manuel Lisa's fur trading boats to St. Louis in 1811, and was again in St. Louis in 1834 for the last time, when on his way to the Pacific coast.

Dr. Geo. Engleman considers him entitled to be called the Father of Western American Botany, and at his suggestion a plain stone monument has been erected in the Missouri Botanical Garden, inscribed

TO THE MEMORY OF

THOMAS NUTTALL,

BORN IN ENGLAND, 1786.

HONOR TO THE ZEALOUS

AND SUCCESSFUL NATURALIST,

THE FATHER OF WESTERN AMERICAN

BOTANY,

THE WORTHY COMPEER OF BARTON,

MICHAUX, HOOKER, TORREY AND GRAY.

DIED SEPT. 1859, AGED 73 YEARS.

Nuttallia Cerasiformis, a Californian wild cherry.—Torr.

Nuttallia Papaver and N. Cordata, two American shrubs.—Dick.

Several plants have specific names in honor of Nuttall. His portrait, painted by Clifford, copied from an original in Philadelphia, is in our museum.